

ABBREVIATION FOR NOZZLES ON PROCESS EQUIPMENT

NOZZLE SYMBOL	DESCRIPTION
A, A1, A2	INLETS
B	OUTLET
C	DRAIN OR DRAW OFF
D	DRAIN
E (+)	
F	FEED
G	LEVEL GAUGE OR GAUGE GLASS
H	HANDHOLES
J	PUMPOUT
K (-)	
L	LEVEL INSTRUMENT (ALSO LT, LI)
M	MANHOLE
N	REBOILER CONNECTION
P	PRESSURE CONNECTION (ALSO PT, PI)
R	REFLUX
S	STEAM OR SAMPLE CONNECTION
T	TEMPERATURE CONNECTION (ALSO TI, TE, TW)
V	VAPOR OR VENT
W	RELIEF VALVE CONNECTION (OVERSIZE UNLESS ACTUAL SIZE KNOWN)

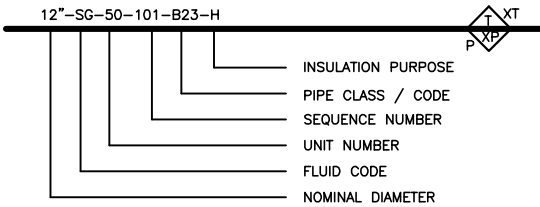
* USE E OR K WHEN NONE OF THE OTHER SYMBOLS APPLY. DO NOT USE I, O, Q, U, X, Y OR Z.

ELECTRICAL ABBREVIATIONS

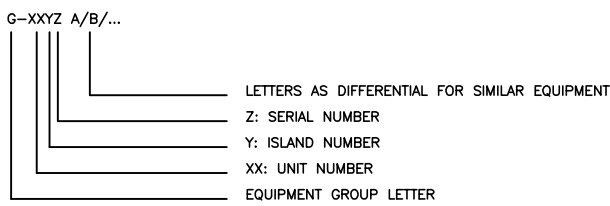
ELECTRICAL SYMBOL	PIPING DESCRIPTION
O	OPEN
C	CLOSE
T	TRIP
I	START
S	STOP
LR	LOCAL RESET
PR	REMOTE RESET
FMC	FORCE MANUAL CLOSE
FMO	FORCE MANUAL OPEN
D	DISABLE
E	ENABLE
X	GENERAL ACTION
L/R	LOCAL OR REMOTE
A/M	AUTOMATIC OR MANUAL
HS	HAND SWITCH

PIPING LINE NUMBERING

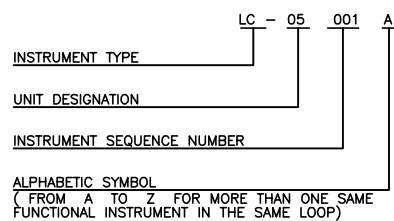
T: OPERATING TEMPERATURE (°C)
 XT: DESIGN TEMPERATURE (°C)
 XP: DESIGN PRESSURE (barg)
 P: OPERATING PRESSURE (barg)



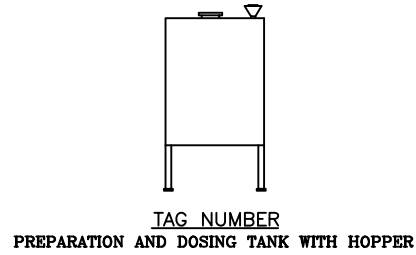
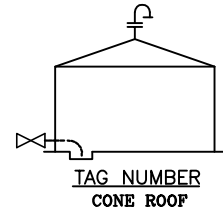
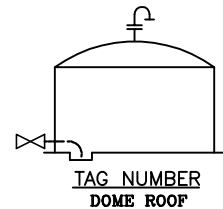
EQUIPMENT NUMBERING



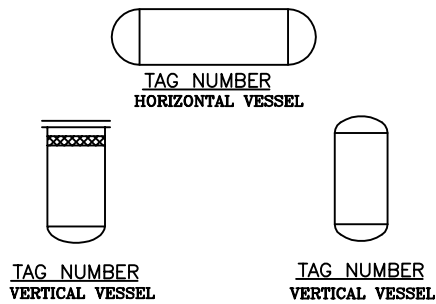
INSTRUMENT NUMBERING SYSTEM



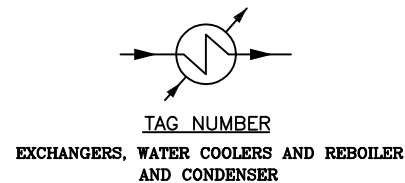
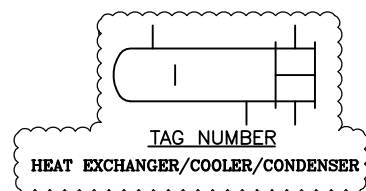
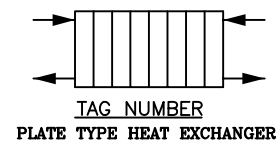
STORAGE TANK



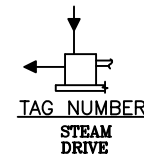
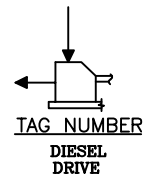
VESSEL



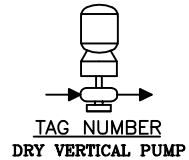
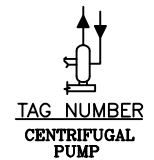
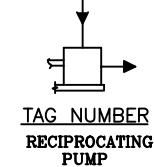
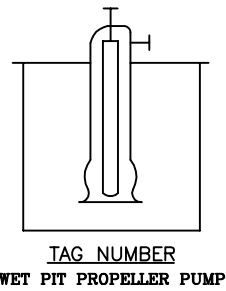
HEAT EXCHANGER



MACHINERY DRIVER



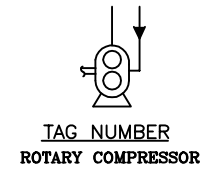
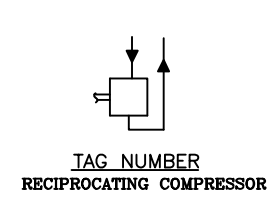
MACHINERY PUMPS



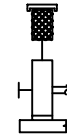
AGITATOR (MIXER)



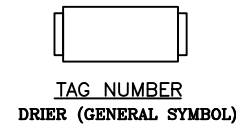
MACHINERY COMPRESSOR



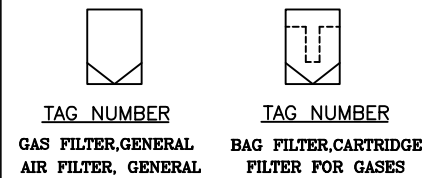
FAN AND BLOWER



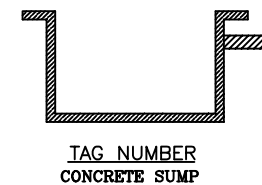
DRIER



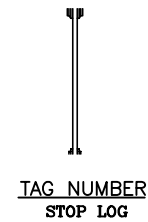
DRIER



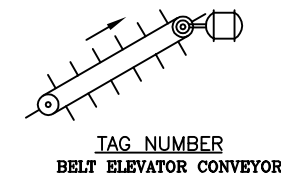
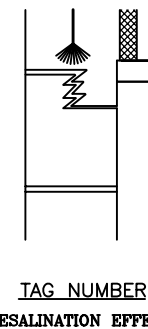
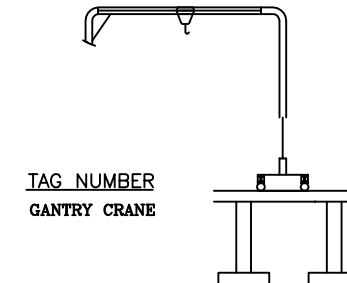
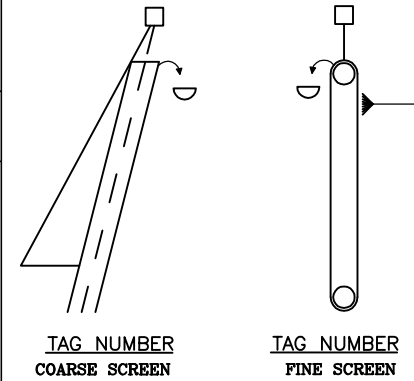
SUMP



INCOMING STOP LOGS



MISCELLANEOUS



REFERENCE DRAWINGS

NO.	DRAWING NUMBER	DRAWING TITLE
1	UT-MT-00-PR-PID-0100-01	SYMBOL AND LEGEND

NOTES:

1- DELETED.

GENERAL NOTE:

1-LEGEND WILL BE FINALIZED AFTER RECEIVING FINAL OFFER FROM VENDOR.

REV.	DATE	DESIGN	DRAW	CHECK	APPROVE	M.C.	DESCRIPTION
B3	7.Jul.14	L.Q	M.P	L.Q	M.Q		IFA
B2	15.Jun.13	M.A	M.P	M.A	M.Q		IFA
B1	16.APR.13	M.A	M.P	M.A	M.Q		IFA
A4	28.JAN.13	M.A	M.P	M.A	M.Q		IFA
A3	29.NOV.12	M.A	M.P	S.S	M.Q		FOR REVIEW
A2	21.OCT.12	M.A	M.A	S.S	M.Q		IFA
A1	10.OCT.12	M.A	M.A	S.S	M.Q		FOR REVIEW

CLIENT: ENERGY INVESTMENT COMPANY

PROJECT: METHANOL PLANT (5000 MTPD) UTILITY AND OFFSITE

MC: CONTRACTOR:

DRAWING TITLE: LEGEND OF P&ID

SIZE:	REV.	DRAWING NUMBER				
A1	B3	CODE No.	TYPE	SIZE	GROUP	CODE No.
PAGE: 2 OF 5	SCALE: N/A	1277	PD	1	EPP	10000

PIPING AND MISCELLANEOUS SYMBOLS

	MAIN PROCESS LINE		CHEMICAL GENERAL
	OTHER LINE		ACID LINE
	UNDERGROUND PIPELINE		CAUSTIC LINE
	EXISTING LINE		FLEXIBLE HOSE
	VENDOR PACKAGE		DIKED AREA
	BATTERY LIMIT		
	TRACED LINE		CHANGE OF NOMINAL DIAMETER
	JACKETED LINE		LIMIT, GENERAL
			CONTRACTOR / VENDOR
	LINE CROSSING (CONNECTED)		CHANGE OF UNITS
	LINE CROSSING (UNCONNECTED)		
	MINIMUM DISTANCE		
	DRIP FUNNEL		
	CHANGE OF LINE NUMBER		
	LEVEL REFERENCE		CHANGE OF PIPE CLASS
	CHANGE IN SLOPE		CHANGE IN RESPONSIBILITY

PIPING & FITTINGS

	HOSE CONNECTION		REDUCER
	FLANGED END		ECCENTRIC REDUCER (FLUSH BOTTOM)
	CAPPED END		ECCENTRIC REDUCER (FLUSH TOP)
	SCREWED CAP		FLANGED CONNECTION
	PLUGGED END		RING SPACER
	MANIFOLD		SPADE BLIND
	PRESSURE BLIND IN WELDED LINE		HAMMER BLIND
	STANDARD SOCKET WELD LINE BLIND UNION W/VITON GASKETS		VENT
	6 mm THICK BLIND TO BLANK OFF EQUIVALENT (VAPOR BLIND)		DRAIN
	STANDARD SOCKET WELD LINE BLIND UNION W/FLEXITALIC GASKETS		
	SPECTACLE BLIND (NORMALLY OPEN)		
	SPECTACLE BLIND (NORMALLY CLOSE)		
	EXPANSION BELLOW		
	STEAM TRAP WITH BUILT-IN STRAINER (THERMOSTATIC OR THERMODYNAMIC TYPE)		
	STEAM TRAP WITHOUT BUILT-IN STRAINER (THERMOSTATIC OR THERMODYNAMIC TYPE)		

PIPING AND MISCELLANEOUS SYMBOLS

	OPEN VENT		OPEN VENT WITH BIRD SCREEN
	LIQUID SEAL		CALIBRATION POT
	BURSTING DISC		MANHOLE
	SIGHT GLASS		FLARE HEADER
	EJECTOR		SAMPLE CONNECTION
	FILTER PLASTIC SLOTTED NOZZLE		PULSATION DAMPENER
	FLAME ARRESTOR / DEMISTER		FLEXIBLE HOSE
	SILENCER		FILTER (GENERAL)
	FILTER FOR COMPRESSOR		PROPELLER MIXER
	FLEXIBLE HOSE WITH QUICK COUPLING		IN-LINE MIXER (STATIC)
	GROUND LEVEL		NOZZLE (BLINDED OFF)
	BUCKET (BASKET) TYPE STRAINER		SLUICE GATES, STOP LOGS
	TEMPORARY STRAINER (CONE TYPE)		AIR TRAP
	VORTEX BREAKER		RESIN TRAP
	THERMO COMPRESSOR		
	AUTO SELF CONTROLLING FILTER		Ca(OH) ₂ TANK FOR CO ₂ ABSORPTION

	SPRAY
	EMERGENCY (SAFETY) SHOWER EQUIPPED WITH NO FREEZING DRAIN VALVE
	EYE WASHER EQUIPPED WITH ON FREEZING DRAIN VALVE
	STORAGE POND SLUICE GATE VALVE
	KERBED AREA
	OUTLET TO THE ATMOSPHERE FOR STEAM/GAS/ VENT FLARE
	INSULATION ON EQUIPMENT
	TIE-IN UNIT
	PROGRESSIVE NUMBER
	BREATHER
	CHEMICAL DRUM
	CHEMICAL DRUM PUMP
	ELECTROLYZER
	TRANSFORMER RECTIFIER
	DESALINATOR
	PLATE IN SAFE LOCATION
	ELECTRICAL HEAT TRACE FOR TANKS AND DRUMS

REFERENCE DRAWINGS

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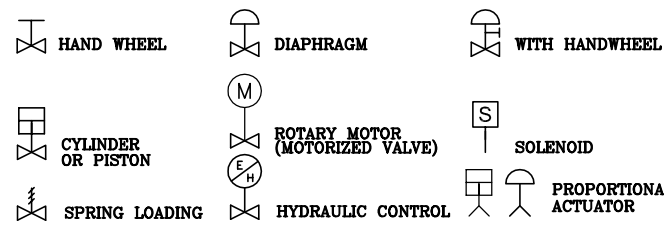
MC: CONTRACTOR:

DRAWING TITLE: LEGEND OF P&ID

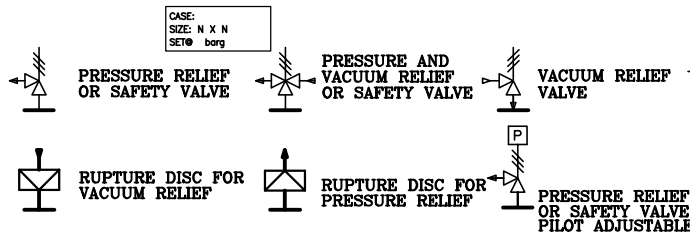
SIZE: A1	REV: B3	DRAWING NUMBER				
PAGE: 3 OF 5	SCALE: N/A	CODE No.	TYPE	SIZE	GROUP	CODE No.
		1277	PD	1	EPP	10000

INSTRUMENTATION SYMBOLS

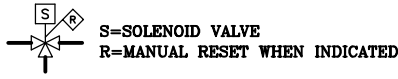
CONTROL VALVE ACTUATORS



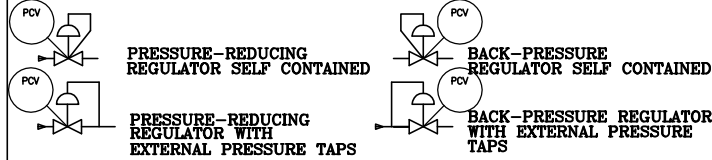
PRESSURE RELIEVING DEVICES



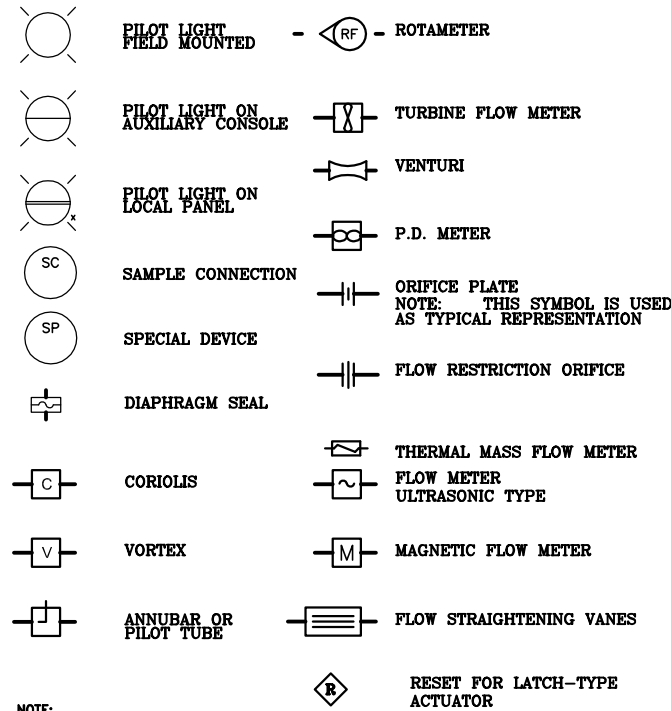
SOLENOID VALVES



SELF ACTUATED REGULATOR

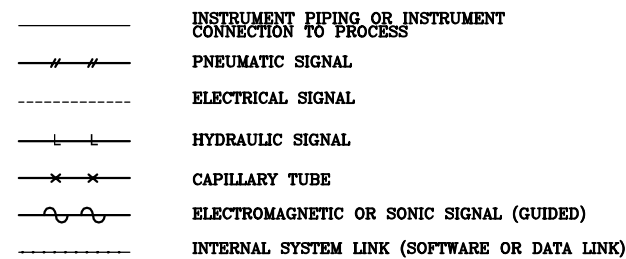


OTHER DEVICES

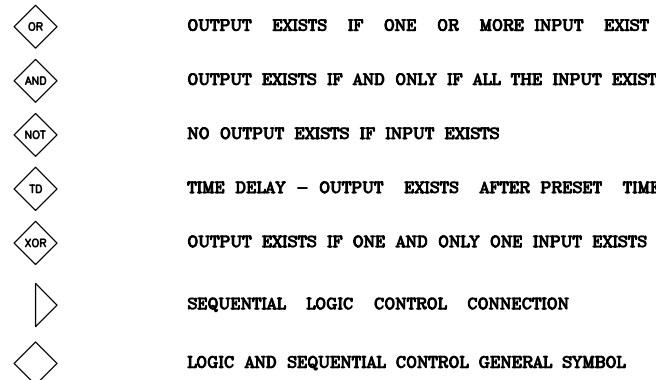


NOTE:
 () PILOT LIGHT "X" DESIGNATION:
 R= RED W= WHITE
 G= GREEN A= AMBER
 B= BLUE Y= YELLOW

INSTRUMENTATION LINES SYMBOLS

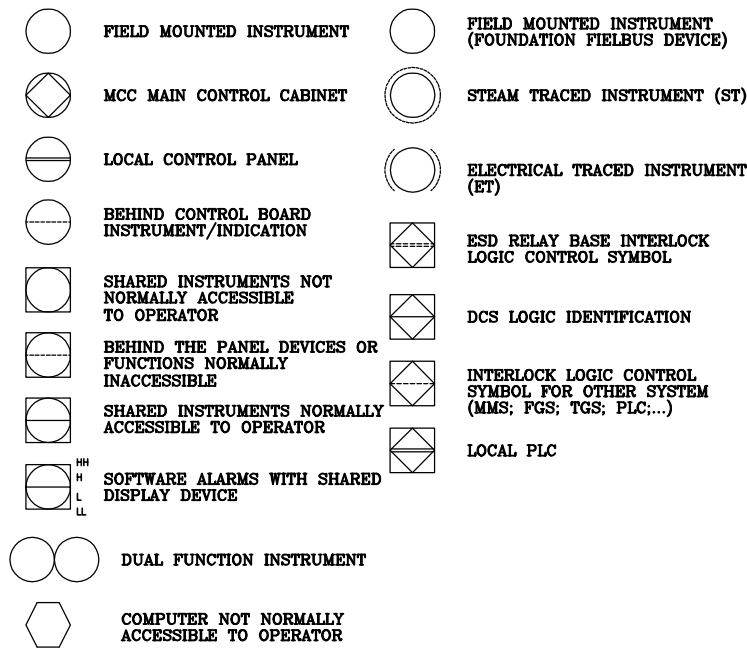


INTERLOCK LOGIC SYMBOLS

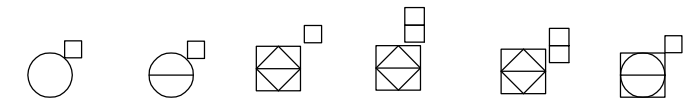


OUTPUT EXISTS IF ONE OR MORE INPUT EXIST
 OUTPUT EXISTS IF AND ONLY IF ALL THE INPUT EXIST
 NO OUTPUT EXISTS IF INPUT EXISTS
 TIME DELAY - OUTPUT EXISTS AFTER PRESET TIME
 OUTPUT EXISTS IF ONE AND ONLY ONE INPUT EXISTS
 SEQUENTIAL LOGIC CONTROL CONNECTION
 LOGIC AND SEQUENTIAL CONTROL GENERAL SYMBOL

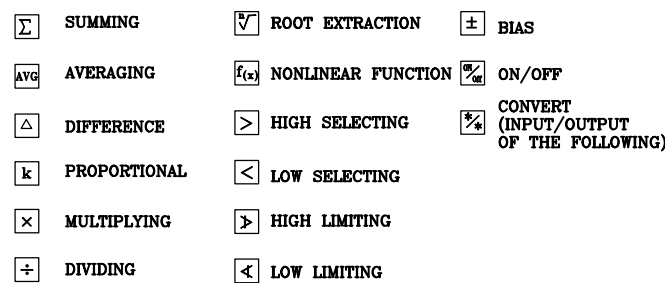
GENERAL INSTRUMENT OR FUNCTION SYMBOLS



FUNCTION IDENTIFICATION



FUNCTION BLOCKS - FUNCTION DESIGNATIONS



DESIGNATION	SIGNAL	DESIGNATION	SIGNAL
A	ANALOG	H	HYDRAULIC
D	DIGITAL	O	ELECTROMAGNETIC OR SONIC
E	VOLTAGE	R	RESISTANCE
I	CURRENT	mV	MILLIVOLTS
P	PNEUMATIC		

INSTRUMENT IDENTIFICATION

IDENTIFICATION LETTERS

	FIRST-LETTER		SUCCEEDING-LETTERS	
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION
A	ANALYSIS		ALARM	
B	BURNER, COMBUSTION	BY PASS		
C	COMPUTATION			CONTROL
D		DIFFERENTIAL		
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)	
F	FLOW RATE	RATIO (FRACTION)		
G	EQUIPMENT STATUS		INDICATING (GAUGE)	
H	HAND (MANUALLY INITIATED)			HIGH/OPEN
I	CURRENT (ELECTRICAL)		INDICATE (ANALOGUE)	
J	POWER	SCAN		
K	TIME, TIME SCHEDULE KEY PHASOR	TIME RATE OF CHANGE		MULTIPLEXER OR TREND
L	LEVEL		LIGHT	LOGIC (SEQUENCE/SWITCHING)
M	MOTOR OPERATED (MOV)	MOMENTARY		MIDDLE, INTERMEDIATE
N	STATUS			
O			ORIFICE RESTRICTION	
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION	
Q	QUANTITY, NUMBER	INTEGRATE, TOTALIZE		
R	RADIATION (NUCLEAR)	RESTRICTION	RECORD OR PRINT	
S	SPEED, FREQUENCY	SAFETY		SWITCH (ING) (SEQUENCE CONTROL)
T	TEMPERATURE			TRANSMITTER
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION			VALVE DAMPER/LOUVER
W	WEIGHT, FORCE		WELL	
X	UNCLASSIFIED		UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE			RELAY, COMPUTE, CONVERT
Z	POSITION, DIMENSION		ESD	DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT

TYPICAL LETTER COMBINATIONS

PROCESS VARIABLE	PRIMARY ELEMENT	TRANSMITTER	SCAN	INDICATOR	RECORDER	CONTROLLER	INDICATING CONTROLLER	RECORDING CONTROLLER	SWITCH				ALARM				GLASS VIEWING DEVICE	WELL(W) CONNECTION(P)	SELF-ACTUATED REGULATOR VALVE	SOLENOID VALVE ***	RELAY, CONVERTER	FINAL ELEMENT
									ABNORMAL PROCESS FIRST STATE		ABNORMAL PROCESS SECOND STATE		ABNORMAL PROCESS FIRST STATE		ABNORMAL PROCESS SECOND STATE							
									HIGH	LOW	VERY HIGH	VERY LOW	HIGH	LOW	VERY HIGH	VERY LOW						
A ANALYSIS	AE	AT	AJ	AI	AR	AC	AIC	ARC	ASH	ASL	ASHH	ASLL	AAH	AAL	AAHH	AALL	-	-	-	AY	AV	
B BURNER	BE	BT	BJ	BI	BR	BC	BIC	BRC	BSH	BSL	BSHH	BSLL	BAH	BAL	BAHH	BALL	BG	-	-	BY	BZ	
C																						
D																						
E VOLTAGE																						
F FLOW	FE	FT	FJ	FI	FR	FC	FIC	FRC	FSH	FSL	FSHH	FSSL	FAH	FAL	FAHH	FALL	FG	-	-	FY	FV	
FF FLOW RATIO	-	-	-	FFI	FFR	FFC	FFIC	FFRC	FFSH	FFSL	FFSHH	FFSSL	FFAH	FFAL	FFAHH	FFALL	-	-	-	FFY	FFV	
FQ FLOW QUANTITY	FQE	FQT	FQJ	FQI	FQR	FQC	FQIC	FQRC	FQSH	FQSL	FQSHH	FQSSL	FQAH	FQAL	FQAAH	FQALL	-	-	-	FQY	FQV	
G																						
H HAND	-	-	-	-	HC	HIC	-	HS	-	-	-	-	-	-	-	-	-	-	-	HY	HW	
I CURRENT	IE	IT	IJ	II	IR	IC	IIC	IRC	ISH	ISL	ISHH	ISLL	IAH	IAL	IAHH	IALL	-	-	-	IY	IZ	
J POWER	JE	JT	JJ	JJ	JR	JC	JIC	JRC	JSH	JSL	JSHH	JSSL	JAH	JAL	JAAH	JALL	-	-	-	JY	JV	
K TIME	KE	KT	KJ	KI	KR	KC	KIC	KRC	KSH	KSL	KSHH	KSSL	KAH	KAL	KAAH	KALL	-	-	-	KY	KV	
L LEVEL	LE	LT	LJ	LI	LR	LC	LIC	LRC	LSH	LSL	LSHH	LSSL	LAH	LAL	LAHH	LALL	LG	-	-	LY	LV	
M																						
N STATUS																						
O																						
P PRESSURE/VACUUM	PE	PT	PJ	PI	PR	PC	PIC	PRC	PSH	PSSL	PSHH	PSSL	PAH	PAL	PAHH	PALL	PG	-	PCV**	PY	PV	
PD PRESSURE DIFFERENTIAL	PDE	PDT	PDJ	PDI	PDR	PDC	PDIC	PDRC	PDSH	PSSL	PDSHH	PSSL	PAH	PAAL	PAHH	PDALL	-	-	-	PDY	PDV	
Q QUANTITY	QE	QT	QJ	QI	QR	QC	QIC	QRC	QSH	QSL	QSHH	QSSL	QAH	QAL	QAAH	QALL	-	-	-	QY	QZ	
R RADIATION	RE	RT	RJ	RI	RR	RC	RIC	RRC	RSH	RSL	RSHH	RSSL	RAH	RAL	RAHH	RALL	-	-	-	RY	RZ	
S SPEED/FREQUENCY	SE	ST	SJ	SI	SR	SC	SIC	SRC	SSH	SSL	SSHH	SSSL	SAH	SAL	SAHH	SALL	-	-	-	SY	SV	
T TEMPERATURE	TE	TT	TJ	TI	TR	TC	TIC	TRC	TSH	TSL	TSHH	TSSL	TAH	TAL	TAHH	TALL	TG	TW	TCV	TY	TV	
TD TEMPERATURE DIFFERENTIAL	TDE	TDI	TDJ	TDI	TDR	TDC	TDIC	TDRC	TDSH	TSSL	TDSHH	TSSL	TAH	TDAL	TDAAH	TDALL	-	-	-	TDY	TDV	
U MULTIVARIABLE	-	-	-	-	UJ	UI	UIR	-	-	-	-	-	-	-	-	-	-	-	-	UY	UV	
V VIBRATION	VE	VT	VJ	VI	VR	VC	-	-	VSH	VSL	VSHH	VSSL	VAH	VAL	VAHH	VALL	-	-	-	VY	VZ	
W WEIGHT	WE	WT	-	WI	WR	WC	WC	WRC	WSH	WSL	WSHH	WSSL	WAH	WAL	WAAH	WALL	-	-	-	WY	WZ	
X SKIN																						
Y STATE	YE	YT	YJ	YI	YR	YC	YIC	YRC	YSH	YSL	YSHH	YSSL	YAH	YAL	YAAH	YALL	-	-	-	YY	YZ	
Z POSITION	ZE	ZT	ZJ	ZI	ZR	ZC	ZIC	ZRC	ZSH	ZSL	ZSHH	ZSSL	ZAH	ZAL	ZAAH	ZALL	-	-	-	ZY	ZV	

SPECIAL ABBREVIATIONS

FC	FAILURE CLOSED	CSO	CAR SEALED OPEN (OPERATING WITH PROCEDURE)
FO	FAILURE OPEN	CSC	CAR SEALED CLOSED (OPERATING WITH PROCEDURE)
FI	FAIL INDETERMINATE	SP	SET POINT
FL	FAIL LAST POSITION	PV	PROCESS VARIABLE
LO	LOCKED OPEN	VS	VENDOR SUPPLY
LC	LOCKED CLOSED	TSO	TIGHT SHUT-OFF

REFERENCE DRAWINGS

NO.	DRAWING NUMBER	DRAWING TITLE
1	UT-MT-00-PR-PID-0100-01	SYMBOL AND LEGEND

NOTES:

- DELETED.
- LOCAL ELECTRONIC TYPE INDICATORS TO BE CONSIDERED ADJACENT TO CONTROL VALVE BY-PASS LOCATION.
- CONTROL VALVE FAILURE POSITION WILL BE INDICATED ON P&ID'S.
- CONTROL VALVES WILL BE SHOWN WITH APPROPRIATE SIZE ON ALL P&ID'S.
- SAFETY VALVES WILL BE SHOWN WITH SIZE, SET PRESSURE AND THERMOCOUPLE, RESISTANCE TEMPERATURE DETECTORS, AND THERMOMETER INSTALLED IN A PIPE HAVE AN ASSOCIATED THERMO-WELL WHICH IS NOT SHOWN'S ON P&ID'S EXCEPT SKIN POINT TEMPERATURE.
- DELETED.

DESCRIPTION:

GENERAL NOTE:

1-LEGEND WILL BE FINALIZED AFTER RECEIVING FINAL OFFER FROM VENDOR.

REV.	DATE	DESIGN	DRAW	CHECK	APPROVE	M.C.	DESCRIPTION
B3	7.Jul.14	L.Q	M.P	L.Q	M.Q		IFA
B2	15.Jun.13	M.A	M.P	M.A	M.Q		IFA
B1	18.APR.13	M.A	M.P	M.A	M.Q		IFA
A4	28.JAN.13	M.A	M.P	M.A	M.Q		IFA
A3	29.NOV.12	M.A	M.P	S.S	M.Q		FOR REVIEW
A2	21.OCT.12	M.A	M.A	S.S	M.Q		IFA
A1	10.OCT.12	M.A	M.A	S.S	M.Q		FOR REVIEW

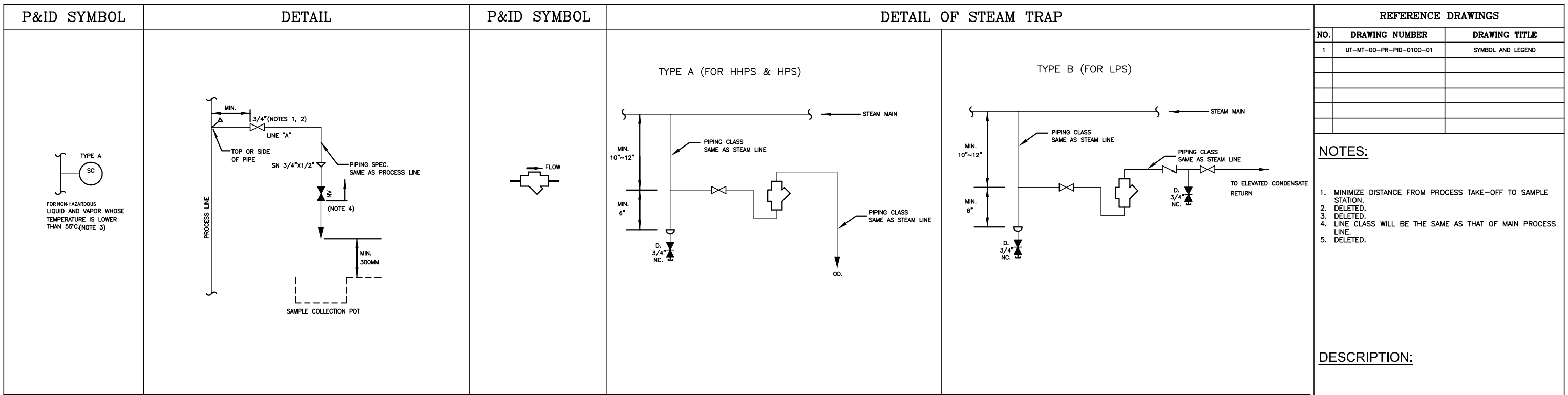
CLIENT: ENERGY INVESTMENT COMPANY

PROJECT: METHANOL PLANT (5000 MTPD) UTILITY AND OFFSITE

MC: CONTRACTOR:

DRAWING TITLE: LEGEND OF P&ID

SIZE:	REV.	DRAWING NUMBER				
A1	B3	CODE No.	TYPE	SIZE	GROUP	CODE No.
PAGE:	SCALE:	1277	PD	1	EPP	10000
4 OF 5	N/A					



REV.	DATE	DESIGN	DRAW	CHECK	APPROVE	M.C.	DESCRIPTION
B3	7.Jul.14	L.Q	M.P	L.Q	M.Q		IFA
B2	15.Jun.13	M.A	M.P	M.A	M.Q		IFA
B1	16.APR.13	M.A	M.P	M.A	M.Q		IFA
A4	28.JAN.13	M.A	M.P	M.A	M.Q		IFA
A3	29.NOV.12	M.A	M.P	S.S	M.Q		FOR REVIEW
A2	21.OCT.12	M.A	M.A	S.S	M.Q		IFA
A1	10.OCT.12	M.A	M.A	S.S	M.Q		FOR REVIEW

CLIENT: ENERGY INVESTMENT COMPANY

PROJECT: METHANOL PLANT (5000 MTPD) UTILITY AND OFFSITE

MC: _____ **CONTRACTOR:** _____

DRAWING TITLE: LEGEND OF P&ID

SIZE:	REV.	DRAWING NUMBER				
A1	B3	CODE No.	TYPE	SIZE	GROUP	CODE No.
5 OF 5	N/A	1277	PD	1	EPP	10000